

# Zhaoyang Chu

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## EDUCATION

<b>Huazhong University of Science and Technology (Advised by Prof. Yao Wan)</b> <i>M.E. in Computer Science and Technology</i>	GPA: 3.53/4.0 2022 – 2025
<b>Huazhong Agricultural University</b> <i>B.E. in Data Science and Big Data Technology (<b>Graduated with Honors</b>)</i>	GPA: <b>3.93</b> /4.0 2018 – 2022

## PUBLICATIONS

- [1] Graph Neural Networks for Vulnerability Detection: A Counterfactual Explanation.  
**Zhaoyang Chu**, Yao Wan\*, Qian Li, Yang Wu, Hongyu Zhang, Yulei Sui, Guandong Xu, Hai Jin.  
**ISSTA 2024**. *The ACM SIGSOFT International Symposium on Software Testing and Analysis*.
- [2] Hierarchical Graph Representation Learning for the Prediction of Drug-Target Binding Affinity.  
**Zhaoyang Chu**, Feng Huang, Haitao Fu, Yuan Quan, Xionghui Zhou, Shichao Liu, Wen Zhang\*.  
**Information Sciences (Impact Factor 8.1)**, 2022.

## RESEARCH PROJECTS

*My research interest focuses on the intersection of **software engineering** and **machine learning**, aimed at building trustworthy AI-driven software systems and exploring the potential of LLMs on code.*

### Counterfactual Reasoning for GNN-based Vulnerability Detection Apr. 2023 – Dec. 2023

- Reformulate the problem of explainability in vulnerability detection from a what-if analysis view.
- Generate counterfactual explanation by identifying a minimal perturbation to the input code graph that would alter the detection system's decision, thus discovering the root cause of the vulnerability.
- Accepted by **ISSTA 2024**, First Author, co-advised by Prof. Qian Li at Curtin University and Prof. Hongyu Zhang at Chongqing University.

### Machine Unlearning for Code LLMs Sep. 2023 – Now

- Propose a gradient-based machine unlearning approach to make code LLMs forget specific sensitive information quickly without requiring retraining them from scratch.
- Submitted to **ICSE 2025**, First Author, co-advised by Prof. Zhikun Zhang at Zhejiang University.

### Benchmarking LLMs for Test Case Generation May 2024 – Now

- Propose a novel benchmark that evaluates LLMs' capabilities in generating test cases for given programs.
- Submitted to **NeurIPS 2024 Datasets and Benchmarks Track**, Co-Author, advised by Prof. Lingming Zhang at UIUC.

### Exploring LLMs as Evaluator for Code Summarization Sep. 2023 – Now

- Explore an LLM-based evaluator that employs a role-player prompting strategy to assess the quality of generated code summaries without references.
- Submitted to **ICSE 2025**, Co-Author, collaborated with Prof. Yulei Sui at UNSW.

### Learning-based Pre-trained Code LLM Selection for Reuse Sep. 2023 – Now

- Develop learning-based methods for efficiently selecting and reusing pre-trained code LLMs for target software engineering tasks within a limited computational budget.
- Submitted to **TSE**, Co-Author, collaborated with Prof. Hai Jin at HUST.

### NaturalCC: An Open-Source Toolkit for Code Intelligence Sep. 2022 – Now

- Main Contributor: Responsible for enhancing compatibility with Transformers and supporting popular code LLMs like Code Llama, CodeT5, CodeGen, and StarCoder from Hugging Face.

## HONORS & AWARDS

Merit Postgraduate, First-class Scholarship for Postgraduates	2022 – 2023
National Scholarship for Undergraduates, Merit Student, Outstanding Undergraduate	2018 – 2022